

Patent Claims

1. A layer system (1)  
having a substrate (4),  
an intermediate layer (7), and  
an outer layer (16),  
particles (10) of a coarse grain size,  
characterized in that

the particles (10) are present on the intermediate layer (7),  
to which particles the outer layer (16) has been applied,  
the intermediate layer (7) having a composition MCrAlY,  
the particles (10) having a composition MCrAlY, and  
M standing for an element selected from the group consisting of  
iron, cobalt or nickel.

2. The layer system as claimed in claim 1,  
characterized in that a further layer (13) is applied to the  
coarse particles (10) prior to the application of the outer  
layer (16).

3. The layer system as claimed in claim 2,  
characterized in that the layer (13) consists of particles of a  
medium grain size.

4. The layer system as claimed in claim 1,  
characterized in that the intermediate layer (7) at least  
partially comprises particles of a fine grain size.

5. The layer system as claimed in claim 1 or 4, characterized in that the intermediate layer (7) is dense.
6. The layer system as claimed in claim 1, characterized in that the substrate (4) is a cobalt- or nickel-based superalloy.
7. The layer system as claimed in claim 1 or 2, characterized in that the coarse particles (10) have a composition MCrAlY, in which M stands for an element selected from the group consisting of iron, cobalt or nickel.
8. The layer system as claimed in claim 1, characterized in that the outer layer (16) is a ceramic layer.
9. The layer system as claimed in claim 1 or 8, characterized in that the outer layer (16) is a thermal barrier coating.

10. The layer system as claimed in claim 1, 4 or 5, characterized in that the intermediate layer (7) is applied by plasma spraying.

11. The layer system as claimed in claim 1, characterized in that the layer system (1) is a gas turbine part.

12. The layer system as claimed in claim 1, characterized in that the particles (10) of a coarse grain size have grain diameters of greater than 80 micrometers, in particular greater than 100 micrometers.

13. The layer system as claimed in claim 3, characterized in that the particles of a medium grain size for the layer (13) have grain diameters of between 22 and 62 micrometers.

14. The layer system as claimed in claim 4, characterized in that the particles of a fine grain size for the intermediate layer (7) have grain diameters of less than 22 micrometers, in particular between 8 and 22 micrometers.

15. The layer system as claimed in claim 4, characterized in that the particles for the intermediate layer (7) have grain diameters of between 8 micrometers and 44 micrometers.

16. The layer system as claimed in claim 14 or 15, characterized in that the level of particles for the intermediate layer (7) of a fine grain size is 50%.